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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/604,086	06/27/2000	Sung Wook Kim	CU-2238	4337
909	7590	01/06/2005	EXAMINER	
PILLSBURY WINTHROP, LLP			TRIMMINGS, JOHN P	
P.O. BOX 10500			ART UNIT	
MCLEAN, VA 22102			PAPER NUMBER	
			2133	
DATE MAILED: 01/06/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/604,086	<b>Applicant(s)</b> KIM ET AL.	
	<b>Examiner</b> John P Trimmings	<b>Art Unit</b> 2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10 and 11 is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 4 is/are rejected.
- 7) ☒ Claim(s) 3, 5-9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

This office action is in response to the applicant's amendment dated 7/27/2004.

Claims 1-11 have been amended. Claims 1-11 are pending.

#### ***Response to Amendment***

1. The examiner acknowledges receipt of the applicant's amendments to Claims 1-11, and withdraws the objections.
2. The examiner acknowledges receipt of the applicant's amendments to Claims 1-11, and withdraws the rejections under 35 USC 112 second paragraph.
3. The examiner acknowledges receipt of the applicant's substitution to the Specification, and withdraws the rejection under 35 USC 112 first paragraph.
4. The examiner acknowledges receipt of the applicant's amendments to the Drawings FIG.'s 1, 2 and 4-6, and withdraws the objection.

#### **New Actions Taken in this Action**

##### ***Claim Objections***

5. Claim 1 is objected to because of the following informalities: In the interest of clarity, the examiner requests that the applicant reword the following phrase in lines 3 and 6 respectively; "...first number of bits into [in]...", and "...first number of bits written into [in]...".
6. Claim 2 is objected to because of the following informalities:

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In the interest of clarity, the examiner requests that the applicant reword the following phrase in lines 5 and 7 respectively; "...first number of bits into [in]...", and "...first number of bits written into [in]...".

Line 13 should recite, "compressing a result from the...".

7. Claim 3 is objected to because of the following informalities: Line 3 should recite, "...the prefetched first data,...".

8. Claim 8 is objected to because of the following informalities: The examiner believes that the following is clearer than the present recitation, beginning at line 14 of the claim, "having gates to receive the outputs of the first and second NAND GATE; a third PMOS transistor having a gate to receive an output of the third NAND GATE and a source to receive a power voltage and drain[s] connected between sources of the first and the second NMOS transistors and drain[s] of the ~~first and the second~~ PMOS transistor; wherein".

9. Claim 11 is objected to because of the following informalities: The phrase "adapted to" is not a positive limitation. The examiner requests that a more definitive limitation be used.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section

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351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1 and 4 are rejected under 35 U.S.C. 102(e) as being anticipated by Lai et al., U.S. Patent No. 6671836.

As per Claim 1:

Lai et al. teaches a method (see Title) for compressing output data comprising: writing a first data having a first number of bits in an address of a core cell region (FIG.4A WDA0-8<8:0> and WDB0-8<8:0>); reading the first data of the first number of bits written in the address as read data having the first number of bits (FIG.4A RDA0-8<8:0> and RDB0-8<8:0>); comparing the first data and the read data by dividing each of the first data and the read data into an upper portion having a second number of bits (FIG.4A R/WDA0-8<8:0>) and a lower portion having a remaining number of bits (FIG.4A R/WDB0-8<8:0>); and generating a 1-bit compressed data for each of the upper portion (FIG.4A 465) and the lower portion (FIG.4A 495) with information indicating whether a failure is present (FIG.4A 455, rd\_Match\_err).

As per Claim 4:

Lai et al. teaches a packet command (column 4 line 56) driving type memory device comprising: a read data comparing part (FIG.4A 495) capable of receiving a first data (FIG.4A WDB0-8<8:0>) and a read data (FIG.4A RDB0-8<8:0>) from a core cell region (FIG.4A 110), both the first data and the read data having a first number of bits (0-8<8:0>), comparing the first data with the read data (FIG.4A 495), and generating a compressed data (FIG.4A rd\_Match\_err) having a second number of bits (1); a data input/output part (FIG.4A 435,490,450/460,405,445) capable of transforming the

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compressed data and the read data to produce more than one data parts (rd\_Match\_err and DQB<8:0>); an interface part (FIG.4A 460 Shift Regs and 405 Output Mux) capable of serially outputting the data parts from the data input/output part in a packet form via an output pad (FIG.4A DQB<8:0>).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lai et al., U.S. Patent No. 6671836, and in view of Manning, U.S. Patent No. 6032274. Lai et al. teaches a method (see Title) for compressing output data comprising: reading a first data from a core cell region and prefetching the first data having a first number of bits in a normal mode (column 1 lines 12-20) and writing the first data of the first number of bits in an address of the core cell region (column 2 lines 31-44) in a test mode (column 2 line 47); reading the first data written in the address of the core cell region and prefetching the read data (column 5 lines 47-64); comparing the first data and the read data (column 7 lines 13-25) by dividing each of the first data and the read data into an upper portion (FIG.4A 465) having a second number of bits and a lower portion having a remaining number of bits (FIG.4A 495); and compressing result from the comparing to generate a compressed data with an information about indicating whether a failure is present (FIG.4A 455 rd\_Match\_err), but fails to teach the shifting out of data and error

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on the same output pins. In an analogous art, Manning does teach this feature, wherein selecting a selected data from the prefetched first data (column 6 lines 38-43) in a normal mode (see TEST in FIG.3 and column 7 lines 8-41) and the compressed data in a test mode (column 7 lines 42-64); shifting the selected data at an ascending edge and a descending edge of a clock signal and outputting the selected data serially via one or more output pads in a normal mode (FIG.3 179 data shifted out if not TEST); shifting the selected data at an ascending edge and a descending edge of the clock signal (column 7 lines 8-22) and outputting the selected data serially via one of the one or more output pads in a test mode (FIG.3 Tristate shifted out in TEST with error). The inventor, in the Abstract and column 5 lines 24-37, boasts of testing a memory faster, with errors being available in successive data-out clocks. One with ordinary skill in the art at the time of the invention, motivated as suggested, would have found it to be obvious to incorporate the serialized error of Manning into the test system of Lai et al. in order to improve test speed.

***Allowable Subject Matter***

11. Claims 10 and 11 are allowed. The following is a statement of reasons for the indication of allowable subject matter: The prior art of Lai et al. and Manning teach a packet command driven method and device for testing a DRAM by passing data in normal mode and an error indication in test mode to the outside via DQ data lines. However, the prior arts of record taken alone, or in combination failed to teach, anticipate, suggest, or render obvious the claimed invention or the method steps of the

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application. Specifically, the prior arts failed to teach, anticipate, suggest, or render obvious the limitation introduced into these claims, namely: both subject claims are drawn to comparators which provide an error output based on 4 bits of an 8 bit data path in a packetized format, and combining the comparator outputs of 8 bits in a serialized manner on one output data pin.

12. Claims 3, 5-9 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.



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Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P Trimmings whose telephone number is 703-305-0714. The examiner can normally be reached on Monday through Thursday, 7:30 AM to 6:00 PM.

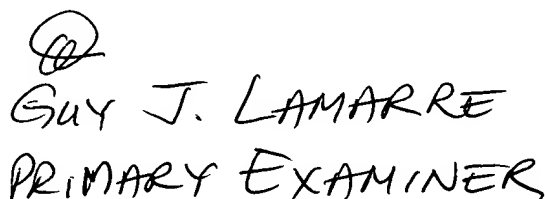
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on 703-305-9595. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John P Trimmings  
Examiner  
Art Unit 2133

jpt



GUY J. LAMARRE  
PRIMARY EXAMINER